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(54) BROADCAST SYSTEM AND BROADCAST RECEIVER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a broadcast system by which a video on demand(VOD) system is easily built up through the use of existing broadcast systems and communication systems access to a center from viewer's homes is decentralized and distribution control is conducted in response to distributed information amount in the case that the center distributes information to the viewer's homes upon the request of the viewers and to provide a broadcast receiver used for the broadcast system.

SOLUTION: A server 1c and a reception terminal equipment 2 are connected so as to be communicated with each other via a 2-way communication line 4 the reception terminal equipment 2 sends the information of an event generated in response to an instruction of a viewer based on a command served by a video image of a broadcast program received from a broadcast equipment 1a to the server 1c via the 2-way communication line 4 and the server 1c reads information corresponding to the receiver event and returns the information to the reception terminal equipment 2 being the event information sending source via the 2-way communication line 4.

CLAIMS

[Claim(s)]

[Claim 1] A server which accumulates information corresponding to an

event generated based on a command which matches with each program image broadcast from a center characterized by comprising the following which broadcasts a program and this center and is provided with that program image. A broadcasting system connected so that a program from said center might be received. It might comprise two or more receiving sets which generate an event based on a command provided with an image of the program which received and said server and said receiving set could communicate mutually via a two-way communication circuit.

An event notification means to notify an event generated according to a televiewer's directions based on a command provided with an image of a program which received said receiving set from said center to said server via said two-way communication circuit.

A presenting means which presents information as which a reply means which said server reads information corresponding to an event notified by this event notification means and replies it to a receiving set of said event notification origin via said two-way communication circuit and a receiving set of said event notification origin were answered by this reply means.

[Claim 2] A position of a televiewer's request is specified to an image of said program as which said event notification means was displayed on a screen of said receiving set. When detecting the specified position, notify generating of an event to said server via said two-way communication circuit with the detected position information and said reply means. The broadcasting system according to claim 1 reading information corresponding to position information notified by said event notification means from said server and replying it to a receiving set of said event notification origin via said two-way communication circuit.

[Claim 3] In a broadcasting signal of a program distributed from said center, Multiplex is carried out by parameter based on reference time of said center and said event notification means. When an event occurs according to a televiewer's directions based on a command provided with an image of a program which received from said center with generation times of an event based on said parameter. Via said two-way communication circuit, notify said generated event to said server and said reply means. The broadcasting system according to claim 1 reading information corresponding to generation times of an event notified by said event notification means from said server and replying it to a receiving set of said event notification origin via said two-way communication circuit.

[Claim 4] In a broadcasting signal of a program distributed from said

center. Multiplex is carried out by control information for specifying a receiving set which permits an event generation based on identification information of each of said receiving set and said receiving set A decision means which judges whether an event generation is permitted based on identification information which the receiving set has and said control information if control information by which multiplex was carried out to said broadcasting signal is received is provided When it is judged that an event generation is permitted by this decision means provide with a command an image of a program which received from said center and said event notification means Via said two-way communication circuit notify an event generated according to a televiewer's directions based on a command with which an image of this program was provided to said server and said server The broadcasting system according to claim 1 calculating the number of events notified by said event notification means carrying out multiplex [of the new control information which changed a receiving set which permits an event generation] to said broadcasting signal and broadcasting it when a number with which the enumerated data were defined beforehand is reached. [Claim 5] In a broadcasting signal of a program distributed from said center. Multiplex is carried out by response request for asking whether generate an event based on a command provided with an image of a program distributed from now on and said receiving set A reporting means which notifies a response which presented that demanded a response from a televiewer and was made by televiewer to this response request when a response request by which multiplex was carried out to said broadcasting signal was received to said server via said two-way communication circuit When it is reported that said server requires generating of an event by said reporting means A means to read information corresponding to the event and to download from said server to a receiving set of said demand origin via said two-way communication circuit The broadcasting system according to claim 1 providing a means to display said downloaded information when an event was generated according to a televiewer's directions based on a command provided with an image of a program distributed from said center.

[Claim 6] A broadcast receiving set comprising:

A reception means which receives a broadcasting signal from a center which broadcasts a program.

An event generation means to generate an event based on a command provided with an image of a program which received by this reception means.

To a server which accumulates information corresponding to an event

generated based on a command which matches with each program image broadcast from said center and is provided with the program image. An event notification means to notify an event generated by said event generation means via a two-way communication circuit set up between the server.

A presenting means which presents the replied information when information corresponding to an event notified by said event notification means from said server is replied via said two-way communication circuit.

[Claim 7] When a position of a televiewer's request is specified to an image of a program which received said event generation means by said reception means The broadcast receiving set according to claim 6 wherein it generates an event and said event notification means notifies generating of an event to said server via said two-way communication circuit with said detected position information by detecting the specified position.

[Claim 8] When a parameter based on reference time by the side of said center receives a broadcasting signal by which multiplex was carried out by said reception means said event generation means The broadcast receiving set according to claim 6 characterized by notifying said generated event to said server via said two-way communication circuit with generation times of an event based on said parameter when an event occurs.

[Claim 9] If control information for specifying a broadcast receiving set which permits an event generation based on identification information of each broadcast receiving set by said reception means receives a broadcasting signal by which multiplex was carried out When it is judged that a decision means which judges whether an event generation is permitted based on said control information and own identification information is provided and an event generation is permitted by this decision means The broadcast receiving set according to claim 6 wherein it provides with a command an image of a program which received from said center and said event notification means notifies an event generated based on a command with which an image of this program was provided to said server via said two-way communication circuit.

[Claim 10] The broadcast receiving set comprising according to claim 6: When a broadcasting signal with which multiplex [of the response request for asking whether generate an event in said reception means based on a command provided with an image of a program distributed from now on] was carried out is received A reporting means which notifies a

response which presented that demanded a response from a televiewer and was made by televiewer to this response request to said server via said two-way communication circuit.

A means to display information beforehand downloaded via said two-way communication circuit according to an event generation demand notified by said reporting means from said server when an event occurred according to a televiewer's directions based on a command provided with an image of a program distributed from said center.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention about the contents currently displayed on the screen of the program currently broadcast. It is related with the broadcasting system which performs distribution of information according to the demand from a televiewer control which eases the access volume from a receiver and distribution control according to the amount of information distributed to a receiver from the broadcasting station side and the broadcast receiving set used for the broadcasting system.

[0002]

[Description of the Prior Art] In recent years, fusion of communication and broadcast comes to be cried for and VOD (Video On Demand) service attracts attention as the forerunner and is required.

[0003] VOD service is the bidirectional broadcast service which can see the video information of the image quality of VTR from a place (On Demand) favorite when you like using the existing television receiver as a video terminal. For example, a televiewer sends a signal to the video server in a telephone office via the telephone line of the uphill direction and he can use selection of video information (movie etc.) a stop, a halt, rewind etc. so that VTR of a house may be operated.

[0004] As a VOD system which provides such VOD service, there is a video-on-demand system indicated in JP7-321748A for example. This video-on-demand system distributes a program to the television system formed in each audience's house according to a televiewer's request from the center (CATV entrepreneur) possessing a video server etc.

While accumulating the detailed information about the thing displayed on a video server in the image of the program distributed to each audience's house and this program and distributing the image of the

program requested from the television system While broadcasting the program which distributed the detailed information relevant to this program and was distributed from the center by the television system the detailed information about the thing specified according to having been expressed as the screen is displayed on the screen of a television system.

[0005]

[Problem(s) to be Solved by the Invention] Thus the going-down circuit which distributes the image from a center to each audience's house in order to realize VOD service conventionally In building the interactive broadcast system which comprises an upstream for transmitting the demand or reply signal from an audience's house to a center large-scale equipment newly needed to be formed.

[0006] Although a response or demand information concentrates on the specific going-up telephone line to a center temporarily from each audience's house and a telephone line can be in what is called a hanging state In order to cope with this there was a problem that fine control for distributing the transmission time of the demand from each audience's house and a response could not be performed.

[0007] Since multiplex [of the information which should be transmitted to each audience's house according to a demand or response of each televiewer from a center] was carried out to the main broadcast signal and it was broadcast conventionally the amount of information which can transmit had a limit.

[0008] Then the purpose of this invention is as follows.

The existing broadcasting system and a communications system are diverted and a VOD system can build easily.

When you distribute information to an audience's house from a center according to distribution of access to a center from an audience's house and a televiewer's demand provide the broadcasting system which can perform easily distribution control according to the amount of information to distribute and the broadcast receiving set used for the broadcasting system.

[0009]

[Means for Solving the Problem] A server which accumulates information corresponding to an event generated based on a command which matches a broadcasting system of this invention with each program image broadcast from a center which broadcasts a program and this center and is provided with that program image Receive a program from said center and it

comprises two or more receiving sets which generate an event based on a command provided with an image of the program which receivedIn a broadcasting system connected so that it could communicate mutually via a two-way communication circuit said server and said receiving set said receiving setAn event notification means to notify an event generated according to a televiewer's directions based on a command provided with an image of a program which received from said center to said server via said two-way communication circuit Said server reads information corresponding to an event notified by this event notification meansA reply means which replies it to a receiving set of said event notification origin via said two-way communication circuit and a receiving set of said event notification originBy providing a presenting means which presents information replied by this reply meansthe existing broadcasting system and a communications system are diverted and a VOD system can build easily.

[0010]To a broadcasting signal of a program distributed from said center. Multiplex is carried out by control information for specifying a receiving set which permits an event generation based on identification information of each of said receiving set and said receiving setA decision means which judges whether an event generation is permitted based on identification information which the receiving set has and said control information if control information by which multiplex was carried out to said broadcasting signal is received is providedWhen it is judged that an event generation is permitted by this decision means provide with a command an image of a program which received from said center and said event notification meansVia said two-way communication circuit notify an event generated according to a televiewer's directions based on a command with which an image of this program was provided to said server and said serverAccess to a center from an audience's house can be easily distributed by calculating the number of events notified by said event notification means carrying out multiplex [of the new control information which changed a receiving set which permits an event generation] to said broadcasting signal and broadcasting it when a number with which the enumerated data were defined beforehand is reached.

[0011]To a broadcasting signal of a program distributed from said center. Multiplex is carried out by response request for asking whether generate an event based on a command provided with an image of a program distributed from now on and said receiving setA reporting means which notifies a response which presented that demanded a response from a televiewer and was made by televiewer to this response request when a

response request by which multiplex was carried out to said broadcasting signal was received to said server via said two-way communication circuitWhen it is reported that said server requires generating of an event by said reporting meansA means to read information corresponding to the event and to download from said server to a receiving set of said demand origin via said two-way communication circuitBy providing a means to display said downloaded informationif an event is generated according to a televiewer's directions based on a command provided with an image of a program distributed from said centerWhen distributing information to an audience's house from a center according to a televiewer's demanddistribution control according to the amount of information to distribute can be performed.

[0012]A reception means which receives a broadcasting signal from a center with which a broadcast receiving set of this invention broadcasts a programAn event generation means to generate an event based on a command provided with an image of a program which received by this reception meansTo a server which accumulates information corresponding to an event generated based on a command which matches with each program image broadcast from said centerand is provided with the program image. An event notification means to notify an event generated by said event generation means via a two-way communication circuit set up between said serversWhen information corresponding to an event notified by said event notification means via said two-way communication circuit from said server is repliedBy providing a presenting means which presents the replied informationonly by adding the above-mentioned function to a receiverthe existing broadcasting system and a communications system are diverted and a VOD system can build easily.

[0013]If control information for specifying a broadcast receiving set which permits an event generation based on identification information of each broadcast receiving set by said reception means receives a broadcasting signal by which multiplex was carried outWhen it is judged that a decision means which judges whether an event generation is permitted based on said control information and own identification information is providedand an event generation is permitted by this decision meansProvide with a command an image of a program which received from said centerand said event notification meansBy notifying an event generated based on a command with which an image of this program was provided to said server via said two-way communication circuitdistribution of access to a center from an audience's house can carry out easily from the center side.

[0014]When a broadcasting signal with which multiplex [of the response

request for asking whether generate an event in said reception means based on a command provided with an image of a program distributed from now on] was carried out is receivedA reporting means which notifies a response which presented thatdemanded a response from a televiewer and was made by televiewer to this response request to said server via said two-way communication circuitWhen an event occurs according to a televiewer's directions based on a command provided with an image of a program distributed from said centerBy having provided a means to display information beforehand downloaded via said two-way communication circuit according to an event generation demand notified by said reporting means from said serverWhen distributing information to an audience's house from a center according to a televiewer's demanddistribution control according to the amount of information distributed from the center side can be performed easily.

[0015]

[Embodiment of the Invention]Hereafteran embodiment of the invention is described with reference to drawings.

[0016](A 1st embodiment) Drawing 1 shows the composition of the whole broadcasting system of this invention roughly.

[0017]In drawing 1the important section of each broadcasting station 1 of the broadcast (terrestrial TVCATVsatellite broadcastingetc.) entrepreneur who is the existing video service comprises the broadcast device 1a(program database (DB) 1band the broadcasting station server 1c.

[0018]The broadcast device 1a comprises a storage device of a video programexchangetransmission equipmentetc. in order to distribute a video program to each audience's house in radio or a wire communication.

[0019]The program database 1b accumulates the information corresponding to the event which is matched with the image in the program distributed to each audience's houseand may be generated based on the contents of the image.

[0020]The broadcasting station server 1c reads the information corresponding to the event notified from the receiving terminal 2 of each audience's house from the program database 1band manages the communications control which distributes it to the receiving terminal 2 of the audience's house which is event notification origin.

[0021]The program database 1b and the broadcasting station server 1c are formed for every broadcasting station of each broadcasting organizationrespectively.

[0022]The important section of the receiving terminal 2 installed in each audience's house comprises the receiving set 2a;display 2bthe network access device 2cand the event generation device 2d.

[0023]The receiving set 2a receives selectively the video signal of the video program distributed from the broadcasting station 1 and reproduces the received video signal.

[0024]Display 2b displays the image reproduced with the receiving set 2a or displays the information received with the network access device 2c.

[0025]The event generation device 2d generates the event to which it is pointed when a televiewer operated pointing device such as a mouse corresponding to the contents displayed on the display 2b and notifies it to the network access device 2c.

[0026]The network access device 2 gains the event notified from the event generation device 2d. If it is notified to the broadcasting station server 1c of correspondence via the two-way communication circuit 4 and the reply to the event notification is received via the two-way communication circuit 4 from the broadcasting station server 1c of correspondence, it will be displayed on display 2b.

[0027]The information transmission line 3 is a uni-directional (receiving terminal 2 of broadcasting station 1 to each audience's house) transmission line where the mass video signal broadcast from the broadcast device 1a of the broadcasting station 1 is distributed.

[0028]The communication lines 4 are bidirectional information-network circuit such as narrow-band telephone line, ISDN circuit, etc., as compared with the information transmission line 3. The communication line 4 may be set as the broadcasting station 1 and an audience's house by the call origination from the receiving set 2a and may be a gestalt which connects the broadcasting station 1 and each audience's house via the Internet, for example.

[0029]Drawing 2 is what showed roughly the composition of the receiving set 2a of the receiving terminal 2 and comprises receive section 2a-1 and regenerating section 2a-2.

[0030]Receive section 2a-1 receives the video signals (VHF, UHF, CATV, NTSC, MPEG1, MPEG2, etc.) distributed from the broadcast device 1a of the broadcasting station 1 according to the characteristic and it sends it to regenerating section 2a-2.

[0031]Regenerating section 2a-2 is reproduced according to the characteristic and it sends the video signal received by receive section 2a-1 to display 2b.

[0032]As drawing 3 is what showed the display example of the picture of one scene of the reproduced image displayed on display 2b and it is shown in drawing 3a reproduced image. For example, it comprises the image 10 of a main program and the sub video image 12 of the menu by which the list of command buttons 11 selectable in the televiewer relevant to the

image 10 of a main program is expressed to the field where the lower end is long and slender.

[0033]For example like the existing teletext systemthe video signal (it is hereafter called a sub video signal) of the sub video image 12 may be added to the video signal (it is hereafter called a main video signal) of a main programand may be distributed at the broadcasting station 1. That isin the broadcast device 1ain the form of a digital signalmultiplex [of the sub video signal] is carried out to the part of the vertical blanking interval which is a time crevice between main video signalsand it is distributed to it. Reception of a video signal will display the receiving set 2aas a sub video signal is reproduced by the decoder provided beforehand and it is shown in drawing 3 with the reproduced main video image.

[0034]The event corresponding to the command button is generated byoperating the mouse provided in the receiving set 2 for exampleand choosing a desired command button (for examplesetting to drawing 3 "program information") out of the menu displayed as the sub video image 12.

[0035]Drawing 4 is what showed the composition of the event generation device 2d roughlyand comprises event acquisition part 2d-1event generation part 2d-2and terminal information attaching part 2d-3.

[0036]Event acquisition part 2d-1 by detecting that the user (televiewer) of the receiving terminal 2 did the mouse click of the desired command button out of the menu shown in drawing 3for exampleAn event generation is detected and the identification information (ID) of the detected event is notified to event generation part 2d-2.

[0037]The zone (channel) information on the program which terminal information attaching part 2d-3 is chosen by the televiewerand is received with the receiving set 2a nowThe information on the location area etc. of the receiving terminal 2 registered by the user (terminal information) is memorized at the time of the purchase of the reference time 2 used as the standard of operation of the receiving terminal 2 (terminal time)for exampleidentification information peculiar to each of each receiving terminal 2 given to the receiving terminal 2 at the time of manufacture(terminal ID)for examplea receiving terminal. It may be made to memorize reply place informationincluding the IP address for receiving the reply from the broadcasting station letc.

[0038]If event acquisition part 2d-1 to event ID is notifiedevent generation part 2d-2Terminal information chosen nowsuch as channel informationterminal ID of the receiving terminal 2current time (terminal time) and a location areaand reply place (self-terminal) informationis

read from terminal information attaching part 2d-3event ID is attached to thisand it sends to the network access device 2c.

[0039]Drawing 5 is what showed the composition of the network access device 2c roughlyand comprises information acquisition section 2c-1server selecting part 2c-2and server access part 2c-3.

[0040]Information acquisition section 2c-1 will pass it to server selecting part 2c-2if event ID and terminal information are received from the event generation device 2d.

[0041]In server selecting part 2c-2as shown in drawing 6the table which remembered the destination information of the broadcasting station server to be channel information corresponding to it is providedBased on the channel information of the terminal information passed from information acquisition section 2c-1with reference to a table as shown in drawing 6the destination information of the broadcasting station server of correspondence is searchedand the destination information of the broadcasting station server obtained as a result is passed to server access part 2c-3 with event ID and terminal information.

[0042]As "destination information of a broadcasting station server" managed on the table shown in drawing 6When what is necessary is just address information required to transmit information required to set up a connection between the partner broadcasting station servers 1cor information and the Internet is accessed via the communication line 4a required IP address may be sufficient.

[0043]Server access part 2c-3 accesses the broadcasting station server 1c chosen via the communication line 4 based on the destination information of the broadcasting station server passed from server selecting part 2c-2and it transmits event ID and terminal information. Server access part 2c-3 will send it to display 2bif the information transmitted from the broadcasting station server 1c via the communication line 4 is received.

[0044]Drawing 7 shows the example of memory of the information memorized and managed to the program database 1b provided in the broadcasting station server 1c provided for every broadcasting station of each broadcasting organization.

[0045]When there are two or more broadcast channels as shown in drawing 7 for exampleThe broadcast area where programs differ also by the same channel further for every broadcast channel of the. When there are (for examplethe area Athe area B--)the information data corresponding to event ID which is matched with the time when the image in the program broadcast by the broadcast area is distributed for every broadcast areaand may be generated based on the contents of the image is

accumulated for example in the list structure.

[0046] When CM is broadcast a televiewer presupposes that the command button 11 which generates the program information acquisition event of drawing 3 was chosen. Although the contents of CM may change with location areas of the receiving terminal 2 If the information on a location area is sent as terminal information when the receiving terminal 2 carries out an event notification the broadcasting station server 1c can acquire the information about the image of suitable CM from the program database 1b by making it into a search key.

[0047] It may be the access information to the broadcasting station server of others [information data / which matches with a broadcast channel a broadcast area event ID delivery time etc. and is memorized by the program database 1b as shown in drawing 7] for example. When the access information to other broadcasting stations has been sent the network access device 2 of the receiving terminal 2 can be connected to other broadcasting station servers and can also receive offer of suitable information from the broadcasting station server concerned.

[0048] In drawing 7 when event ID is matched with the image in the program broadcast the time when that image is distributed is used but it may not restrict in this case but may be a frame number of an image etc. for example.

[0049] Now when the broadcasting station server 1c is accessed via the communication line 4 from the network access device 2c of the receiving terminal 2 and event ID and terminal information are notified the broadcasting station server 1c For example the program database 1b is searched by using as a key the channel information included in terminal information terminal time and event ID.

[0050] When the channel information included in terminal information terminal time and event ID are specified as the program database 1b the information data which should be pulled out is memorized beforehand.

[0051] The broadcasting station server 1c will transmit via the communication line 4 to the receiving terminal 2 specified for the reply place information included in terminal information if the information data corresponding to the event which searched the program database 1b and was specified is read.

[0052] Next a series of processing operation of the broadcasting system of drawing 1 is explained with reference to the flow chart shown in drawing 8 - drawing 10.

[0053] If the receiving set 2a receives a program with the televiewer selected from many programs broadcast from two or more broadcasting

stations las mentioned abovean image as shown in drawing 3 will be displayed on display 2b.

[0054]If the mouse click of command button "program information" 11 is carried out out of the menu which the televiwer using that receiving terminal 2 showed to drawing 3 at this timeevent acquisition part 2d-1 of the event generation device 2d will detect an event generation (Step S1 of drawing 8). And event acquisition part 2d-1 notifies event ID matched with the command button "program information" to event generation part 2d-2 (Step S2).

[0055]The channel information of the program in which event generation part 2d-2 is received from terminal information attaching part 2d-3 now if event ID is notifiedTerminal informationsuch as terminal timeterminal IDa location area of a terminaland reply place (self-terminal) informationis read (Step S3)and the terminal information and event ID which were read are notified to the network access device 2c (step S4)next it progresses to Step S10 of drawing 9.

[0056]When information acquisition section 2c-1 of the network access device 2c receives event ID and terminal information from the event generation device 2d (Step S10 of drawing 9)server selecting part 2c-2Based on the channel information included in the terminal informationthe broadcasting station server 1c accessed from the table shown in drawing 6 is chosenand the destination information of the broadcasting station server 1c is acquired (Step S11).

[0057]Server access part 2c-3 accesses the broadcasting station server 1c selected based on the destination information acquired by server selecting part 2c-2and it transmits event ID and terminal information via the communication line 4 (Step S12)next follows them to Step S20 of drawing 10.

[0058]The broadcasting station server 1 by the side of the broadcasting station 1 via the communication line 4 From the network access device 2c of the receiving terminal 2 to event ID. If terminal information is received (Step S20 of drawing 10)they will be made into a keya program database will be searched (Step S21)and what suited the terminal information of the receiving terminal 2 of event notification origin among the information corresponding to event ID will be read (Step S22).

[0059]The broadcasting station server 1c transmits the information data read from the program database 1b via the communication line 4 to the receiving terminal 2 specified for the reply place information included in terminal information (Step S23)next follows it to Step S30 of drawing 9.

[0060]If the information transmitted from the broadcasting station

server 1c via the communication line 4 is received (Step S30 of drawing 9) the network access device 2c of the receiving terminal 2 will send it to display 2b and will be displayed with display 2b (Step S31).

[0061] The display example at the time of displaying the information transmitted from the broadcasting station server 1c at Step S31 of drawing 9 with display 2b is shown in drawing 11.

[0062] When the mouse click of the command button 11 which the televiewer using the receiving set 2 of drawing 1 shows to drawing 3 is carried out and the broadcasting system of drawing 1 operates according to the flow chart which drawing 8 - drawing 10 showed If desired information is received from the broadcasting station server 1c as shown in drawing 11 (a) as the 1st step first for example Display 2b was arranged in the command button 11 in the lower end of the image 10 of a main program opened the message indicator window 13 and acquired "program information in this window 13 for example. The command button which instructs "YES" and "NO" to be the messages whether to take a look immediately now" is displayed.

[0063] If a televiewer does the mouse click of the command button "YES" to this for example Display 2b displays the information-display window 14 as divided a screen for example shown in drawing 11 (b) on the image 10 of a main program side by side and displays the information (program information) previously received from the broadcasting station server 1c in this window 14. In drawing 11 (b) the left-hand side of the divided screen is a broadcast screen where the image which is a main program is displayed and right-hand side is a network access screen which displays the information from the broadcasting station server 1c.

[0064] When a televiewer does the mouse click of the "NO" from the state of drawing 11 (a) (when selection that a televiewer does not immediately look at program information now is performed) The information acquired from the broadcasting station server 1c is stored in the memory storage beforehand provided in the terminal unit 2 so that [the program information] it may be seen when you like a televiewer.

[0065] As mentioned above as explained while according to a 1st embodiment of the above the existing broadcasting system and a communications system are diverted and a VOD system can build easily if it compares with the case where always carry out multiplex to the video signal of a main program and it distributes when there is information which should be distributed to each audience's house from the broadcasting station side like the conventional VOD system -- more -- texture -- it takes to a warm televiewer and good service of convenience can be provided easily.

[0066] (A 2nd embodiment) When displaying a reproduced image with display

2bthere will be not only when shown in drawing 3 but the method of presentation as shown in drawing 12 (a)for example. That isthe image displayed with display 2b is only an image of a main programand the sub video image of a menu is not displayed.

[0067]In this casein order to generate the event of a televiewer's requestthe mouse provided in this receiving terminal 2 is operatedand the position of a desired image is clicked among the images shown in drawing 12 (a).

[0068]The processing operation of the event generation device 2 in that case is explained with reference to the flow chart shown in drawing 13. Suppose that the castle of the amusement park which is visible to the background on an image as the user of the receiving terminal 2 shows to drawing 12 (a) was clicked with the mouse. Thenevent acquisition part 2d-1 of the event generation device 2d detects an event generation as the mouse click by the user (televiewer) of the receiving terminal 2 by detecting the position (position of a castle) on the clicked image further (Step S40). (what is identified in event ID)i.e.it is defined beforehand what kind of information for exampleis displayedand it may be made to display a message to that effect into the program image. [the kind of event generated here] The position information detected by event acquisition part 2d-1 may be a coordinate valueand may be the identification information for identifying a rough field as shown by drawing 12 (b). Although drawing 12 (b) is shown corresponding to the image shown in drawing 12 (a)For example the field R2 of drawing 12 (b) corresponding to the portion in which the person is reflected can also be beforehand appointed as a default field in which anything does not have the information which should be displayed corresponding to iteven if a mouse click is carried out and it is chosen. The field R1 of drawing 12 (b) corresponding to background parts is a field in which a predetermined event generation is possible by carrying out a mouse click.

[0069]If an event generation is detected by event acquisition part 2d-1it will be notified to event generation part 2d-2 that the clicked position information is the detected event ID (Step S41).

[0070]If event ID and position information are notifiedevent generation part 2d-2The channel information of the program received from terminal information attaching part 2d-3 nowTerminal informationsuch as terminal timeterminal IDa location area of a terminaland reply place (self-terminal) informationis read (Step S42)and the terminal information and event ID which were readand position information are notified to the network access device 2c (Step S43).

[0071]The processing operation of subsequent broadcasting systems is the

same in the processing operation of the broadcasting system explained by drawing 9 - drawing 10. However the position information on the image by which what is transmitted to the broadcasting station server 1c from the network access device 2c was further clicked with event ID and terminal information is also included.

[0072]The information memorized by the program database 1b by the side of the broadcasting station 1 also differs from the case of drawing 7. That is as shown in drawing 14 in the program database 1ba list structure which serves as a search key besides event ID also in the position information (for example setting to drawing 14 the field Y1aY1b--) on an image is made and it is accumulated. Or a list structure which replaces with event ID of drawing 17 and serves as a search key in the position information on an image is made and it may be accumulated.

[0073]The position information in particular as a search key memorized by the program database 1b does not need to be a coordinate value for example the information which shows the range of a rough field may be sufficient as it and it searches the field which has the position notified from the receiving terminal 2 within the limits of it. It may be a search key when the position information notified from the receiving terminal 2 is the identification information of a field.

[0074]Now if the information corresponding to the position which the program database 1b read in the broadcasting station server 1c and by which the mouse click was carried out is transmitted to the receiving terminal 2 of event notification origin according to the flow chart shown in drawing 10 in that of the receiving terminal 2 it will operate according to Step S30 - Step S31 of drawing 9. To display 2b the message indicator window 13 is opened for example like drawing 11 (a) in the lower end of the image of a program and he is Maine Castle of a "Tokyo xx land in this window 13 for example. The command button which instructs "YES" and "NO" to be the messages whether to see information immediately" is displayed.

[0075]If a televiewer does the mouse click of the command button "YES" to this for example Display 2b divides a screen for example displays the information-display window 14 on the image of a program side by side like drawing 11 (b) and displays the information previously received from the broadcasting station server 1c in this window 14.

[0076]When a televiewer does the mouse click of the command button "NO" it is also the same as that of explanation of drawing 11.

[0077](A 3rd embodiment) Other examples of composition of the broadcasting system of this invention are shown in drawing 15. In drawing 15 identical codes are given to drawing 1 and identical parts and

only a different portion is explained to them. That is the server selection server 5 is newly formed and the composition of the network access device 2c differs.

[0078]The server selection server 5 possesses the table which memorized the destination information of the broadcasting station server corresponding to channel information and it as show drawing 6 for example and it is connected with the receiving terminal 2 of each audience's house in the information network so that connection may be possible. That is as compared with the information transmission line 3 between the broadcasting station 1 and each audience's house is connected if needed via the communication line 6 which are bidirectional information-network circuitssuch as narrow-band telephone lineISDN circuitetc. The communication line 6 may be a gestalt which connects the broadcasting station 1 and each audience's house via the Internet like the communication line 4.

[0079]Drawing 16 shows and carries out composition of the network access device 2c. Identical codes are given to drawing 5 and identical parts and only a different portion is explained to them. That is server selecting part 2c-2 is not provided to the network access device 2c of drawing 16 but information acquisition section 2c-1 and server access part 2c-3 are connected to it.

[0080]Next the processing operation of the network access device 2c of composition of having been shown in drawing 16 with reference to the flow chart shown in drawing 17 is explained.

[0081]If information acquisition section 2c-1 receives event IDterminal informationetc. from the event generation device 2d they will be passed to server access part 2c-3 as they are (Step S50).

[0082]If event IDterminal informationetc. are received from information acquisition section 2c-1 server access part 2c-3 will access the server selection server 5 and it will transmit the channel information included in terminal information via the communication line 6 (Step S51 - Step S52).

[0083]In the server selection server 5 if channel information is received the broadcasting station server 1c accessed from the table shown in drawing 6 will be chosen based on it the destination information of the broadcasting station server 1c will be acquired and server access part 2c-3 will reply it via the communication line 6 (Step S53).

[0084]Server access part 2c-3 accesses the broadcasting station server 1c selected based on the destination information transmitted from the server selection server 5 and it transmits event IDterminal informationetc. via the communication line 6 (Step S54 - Step S55).

[0085]Nextif processing operation not more than step S20 of drawing 10 is performed and the information on relevance is transmitted to server access part 2c-3 via the communication line 4 from the selected broadcasting station server 1c (Step S30 of drawing 17)It is sent to display 2b and it is displayed with display 2b (Step S31).

[0086](A 4th embodiment) The example of composition of further others of the broadcasting system of this invention is shown in drawing 18. In drawing 18identical codes are given to drawing 1 and identical partsand only a different portion is explained to them. Namelythe composition of the receiving set 2a differs and with the video signal of the broadcasting station 1 to a program. For examplethe parameter based on the reference time by the side of broadcasting stationssuch as time (broadcasting station time) when the program was distributedMultiplex [of the system-status information about the video signal provided from the broadcasting station 1 side which distributes a program of the frame number of an image] is carried outit is distributedand the exchange of information is performed between the receiving set 2a and the event generation device 2d in connection with it.

[0087]Other examples of composition of the receiving set 2a are shown in drawing 19. Identical codes are given to drawing 2 and identical partsand only a different portion is explained.

[0088]If the video signal with which multiplex [of the system-status information distributed from the broadcast device 1a of the broadcasting station 1 by receive section 2a-1] was carried out is receivedregenerating section 2a-2 will separate system-status information from the video signal received by receive section 2a-1and it will reproduce each according to the characteristic. And a video signal is transmitted to display 2b and system-status information is transmitted to system state attaching part 2a-3.

[0089]System state attaching part 2a-3 stores system-status informationsuch as a frame number of broadcasting station time and an imageand it updates the stored system-status information by the system-status information transmitted from regenerating section 2a-2.

[0090]Event generation part 2d-2 of the event generation device 2dIf event ID is received from event acquisition part 2d-1 of the event generation device 2dwhile reading terminal information from terminal information attaching part 2d-3system state attaching part 2a-3 of the receiving set 2a is accessedand the system-status information at that time is read. And event generation part 2d-2 transmits event IDterminal informationand system-status information to the network access device 2c.

[0091]If these information is transmitted to the broadcasting station

server 1c via the network access device 2c for example it is contained in the system-status information instead of terminal time the program database 1b will be searched with the broadcasting station server 1c as one of the search keys using broadcasting station time.

[0092] The terminal time generally held at the receiving terminal 2 installed in each audience's house differs from the time which the broadcasting station 1 defines i.e. broadcasting station time also with some.

[0093] According to this 4th embodiment in the broadcasting station server 1c the event generation time used as the search key at the time of retrieving the information corresponding to the notified event can grasp more correctly on the time of generating of the event in each receiving terminal 2 being based on broadcasting station time.

[0094] (A 5th embodiment) The example of composition of further others of the broadcasting system of this invention is shown in drawing 20. In drawing 20 identical codes are given to drawing 1 and identical parts and only a different portion is explained to them. That is when distributing information to an audience's house from a center according to distribution of access to a center from each audience's house and a televiewer's demand in order to perform distribution control according to the amount of information to distribute the composition of the receiving set 2a mainly differs.

[0095] From the broadcasting station 1 multiplex [of the terminal-control information for controlling the receiving terminal 2 of each audience's house] is carried out to the video signal of **** and it is distributed to it.

[0096] The example of composition of further others of the receiving set 2a is shown in drawing 21. Identical codes are given to drawing 2 and identical parts and only a different portion is explained. That is if the video signal with which multiplex [of the terminal-control information distributed from the broadcast device 1a of the broadcasting station 1 by receive section 2a-1] was carried out is received regenerating section 2a-2 will separate terminal-control information from the video signal received by receive section 2a-1 and it will reproduce each according to the characteristic. And a video signal is transmitted to display 2b and terminal-control information is transmitted to event activation part 2a-4.

[0097] The control information about the event which can be generated with the receiving terminals 2 such as a selectable command button is also included in terminal-control information by the televiewer other than the control information for controlling the receiving terminal 2 of each

audience's house by the intention by the side of the broadcasting station 1.

[0098]Event activation part 2a-4 performs processing in which display a command button on display 2b based on terminal-control information or point to the existence of a drive of an event to event acquisition part 2d-1 when a televiewer does a mouse click etc. and an event is generated or event ID is given. That is event activation part 2a-4 manages the control about the event in the receiving terminal 2 based on it when terminal-control information is received from the broadcasting station 1.

[0099]By having composition as shows drawing 21 the receiving set 2a carrying out multiplex [of the terminal-control information] to the video signal distributed from a broadcasting station and transmitting to it. For example effective control is attained when it is expected that access from the receiving terminal 2 concentrates to the broadcasting station server 1c at the specific time under 2 program broadcasts when the amount of information which should transmit to each receiving terminal 2 via the communication line 4 from the one broadcasting station 1 is extensive.

[0100]1) Control management when the amount of information which should transmit to each receiving terminal 2 via the communication line 4 from the broadcasting station 1 is extensive (the 1st control management)
In this case it is possible by generating a terminal event in the broadcasting station 1 side to control the network access device 2c. Therefore before a televiewer generates the event which accesses the broadcasting station server 1c. When server access is made to perform to the receiving terminal 2 at (for example the program start time) and an event notification is actually made from the televiewer side the information which should be transmitted from the broadcasting station server 1c is already transmitted to the receiving terminal 2.

[0101]Next the outline of the 1st control management is explained with reference to the flow chart shown in drawing 22.

[0102]First the broadcasting station 1 distributes the video signal which carried out multiplex [of the terminal-control information] to the receiving terminal 2 of each audience's house at the program broadcast start time for example (Step S60). At this time the message information for button grabbing etc. are included in terminal-control information the button (for example the "YES" button and the "NO" button) for asking whether want me to display the detailed information of the program broadcast from now on as opposed to a televiewer and if needed.

[0103]If the video signal from the broadcasting station 1 is received in receive section 2a-1 of the receiving set 2a of the receiving terminal

2the terminal-control information separated when reproducing the video signal by regenerating section 2a-2 will be passed to event activation part 2a-4 and event activation part 2a-4 will be started.

[0104]Event activation part 2a-4 controls to display the button and message which are contained in terminal-control information to display 2b and it notifies event ID to event acquisition part 2d-1 of the event generation device 2d (Step S61).

[0105]When a televiewer sees the message displayed on display 2b and you wish presenting of program detailed information the "YES" button When the mouse click of the "NO" button is carried out when that is not right and event acquisition part 2d-1 detects it a program information acquisition event occurs (Step S62).

[0106]If the "YES" button is clicked and a program information acquisition event occurs an event notification will be made by the broadcasting station server 1c via the network access device 2c and the communication line 4 (Step S63).

[0107]In the broadcasting station server 1c based on event ID terminal information etc. which have been sent from the receiving terminal 2 the program detailed information of correspondence is read from the program database 1b and it is downloaded to the network access device 2c of the receiving terminal 2 via the communication line 4 (Step S64). This downloaded program detailed information is stored in the information storing device provided in the receiving terminal 2.

[0108]Then a start of broadcast of a actual program will start event activation part 2a-4 using the terminal-control information sent by carrying out multiplex to the video signal of the program (Step S65). If the message information for button grabbing etc. are included if needed event activation part 2a-4 will display them on display 2b as the button (for example program information display button) for [which displays the detailed information of a program on terminal-control information] carrying out an event generation.

[0109]If the mouse click of the "program information display" button is carried out and event acquisition part 2d-1 detects it when a televiewer sees the message displayed on display 2b and you wish presenting of program information That is notified to event activation part 2a-4 event activation part 2a-4 reads the information downloaded from the information storing device and it controls to display on display 2b (Step S66).

[0110]Thus even when the amount of information which should transmit to each receiving terminal 2 via the communication line 4 according to the demand from a televiewer from the broadcasting station 1 during program

broadcast is extensive. For example before a broadcast start carry out multiplex [of the terminal-control information] to a video signal distribute to each audience's house and in the receiving terminal of each audience's house. Event activation part 2a-4 is started for the terminal-control information by which multiplex was carried out to the received video signal. It asks whether generate a program information acquisition event from the televiewer side. Program information is beforehand downloaded from the broadcasting station server 1c via the communication line 4 to the information storing device of the receiving terminal 2 of the audience's house which wishes an event generation. Then when broadcast of a main program is actually started and a program information acquisition event is generated by a televiewer. The program information already downloaded to the information storing device by [of event activation part 2a-4] reading also as that of control and displaying on display 2b. Even when there is much amount of information transmitted via the communication line 4a broadcast image and its program information can be enjoyed in real time without for example response time until it displays the information corresponding to the event on display 2b becoming long after a televiewer generates an event.

[0111] 2) When it is expected that access from the receiving terminal 2 concentrates to the broadcasting station server 1c at the specific time under program broadcast it is the control management (the 2nd control management) for relaxation of access volume.

In this case the control information about the event generated at the receiving terminal side and the terminal specification information for specifying the receiving terminal which can generate that event are also included in the terminal-control information distributed via the information transmission line 3 with a video signal from the broadcasting station 1.

[0112] The terminal designation by terminal specification information specifies the receiving terminal 2 in specified number for example lower 1 figure updating [of terminal ID] in "0" 12--9 and order (or lower 2 figure--).

[0113] When the receiving terminal 2 in which the event generation was permitted in terminal specification information accesses via the communication line 4 in the broadcasting station server 1c of the broadcasting station 1 (event notification) When accessing this receiving terminal 2 and transmitting the information corresponding to the event via the communication line 4 the number of the accessed receiving terminals 2 is calculated and when the enumerated data reach the number

defined beforehand the broadcasting station server 1c notifies that to the broadcast device 1a (refer to drawing 20).

[0114] If the broadcast device 1a receives the notice from the broadcasting station server 1c for example it will update the lower 1 figure value of terminal ID will change terminal specification information will carry out multiplex [of the terminal-control information including the changed terminal specification information] to a video signal and will distribute it to an audience's house.

[0115] The timing which updates terminal specification information may be every specified time elapse besides [the above (when the number of the receiving terminals 2 which accessed the broadcasting station server 1c reaches the number defined beforehand)] a case.

[0116] Next the outline of the 2nd control management operation is explained with reference to the flow chart shown in drawing 23.

[0117] First the broadcasting station 1 carries out multiplex [of the terminal-control information including terminal specification information for the lower 1 figure of terminal ID to specify the receiving terminal 2 which is "0" for example] to the video signal of a main program and distributes it to the receiving terminal 2 of each audience's house (Step S80).

[0118] If the video signal from the broadcasting station 1 is received in receive section 2a-1 of the receiving set 2a of the receiving terminal 2 the terminal-control information separated when reproducing the video signal by regenerating section 2a-2 will be passed to event activation part 2a-4 and event activation part 2a-4 will be started (Step S81).

[0119] Event activation part 2a-4 confirms whether compare terminal ID and terminal specification information which were memorized beforehand and the self-terminal is specified (Step S82). For example when it is [of terminal ID / lower 1 figure] the value specified in terminal specification information event activation part 2a-4 It controls to display the button and message for event generations which are contained in terminal-control information to display 2b and event ID is notified to event acquisition part 2d-1 of the event generation device 2d.

[0120] When a televiewer sees the message displayed on display 2b for example you wish presenting of program detailed information the "YES" button When the mouse click of the "NO" button is carried out when that is not right and event acquisition part 2d-1 detects it a program information acquisition event occurs (Step S83).

[0121] If the "YES" button is clicked for example a program information acquisition event occurs an event notification will be made by the

broadcasting station server 1c via the network access device 2c and the communication line 4 (Step S84).

[0122]In the broadcasting station server 1c the information (for example program detailed information) corresponding to the event is read from the program database 1b based on event ID terminal information etc. which have been sent from the receiving terminal 2. It is downloaded to the network access device 2c of the receiving terminal 2 via the communication line 4 (Step S85). This downloaded program detailed information is displayed on display 2b.

[0123]On the other hand in the broadcasting station server 1c when downloading to the network access device 2c of the receiving terminal 2 the number of the accessed receiving terminals 2 is calculated (Step S86). If this counted value reaches a predetermined number (Step S87) that will be notified to the broadcast device 1a (Step S88).

[0124]In response to this notice by lower 1 figure updating to "1" of terminal ID terminal specification information is changed (Step S89 - Step S90) it returns to Step S80 multiplex [of that changed terminal specification information] is carried out to the video signal of a main program and it distributes to each audience's house in the broadcast device 1a.

[0125]It continues for example until it finishes lower 1 figure specifying [of terminal ID / all] until all the receiving terminals 2 are specified in the above processing.

[0126]Thus by specifying the receiving terminal 2 in which an event generation is possible in specified number in terminal specification information even when concentration of access to the broadcasting station server 1c of the receiving terminal 2 in a certain time zone is expected Distribution of the access time to the broadcasting station server 1c of the receiving terminal 2 can be ensured therefore concentration of access to the broadcasting station server 1c can be eased.

[0127]Other examples of the utilizing method of the broadcasting system of composition of having been shown in (a 6th embodiment) next drawing 1 drawing 15 drawing 18 and drawing 20 are explained. Namely although the above-mentioned broadcasting system explained the case where information was mainly transmitted from the broadcasting station 1 side according to a televiewer's demand the questionnaire survey to a televiewer can also be conducted using the broadcasting system of this invention. For example it is assumed that the discussion program by several critics is broadcast. At this time the image as shown in drawing 24 is displayed on display 2b of the receiving terminal 2 of each audience's house for

example.

[0128]The image shown in drawing 24 comprises the image 10 of a main program and the sub video image 12 of the menu in which the list of buttons 11 is displayed like drawing 3.

[0129]A televiewer clicks with a mouse the button to which the "x" seal was attached when consenting the button which attached the name of the critic who can approve out of the menu of the button 11 displayed as the sub video image 12 to no a critic's opinion. Then terminal information the position information on the clicked image etc. are transmitted [like the above-mentioned] to the broadcasting station server 1c of relevance via the communication line 4 for example from a televiewer's receiving terminal 2 (event notification).

[0130]In the broadcasting station server 1c each televiewer's opinion is discriminated from this position information transmitted from the receiving terminal 2 of each audience's house and it registers with the program database 1b.

[0131]Then at the broadcasting station 1 the opinion from each televiewer registered into the program database 1b can be searched statistics of the opinion etc. can be obtained and it can be reflected in a program.

[0132]By recording the log in the broadcasting system of this invention whenever an event is notified to the broadcasting station server 1c from each receiving terminal 2 The degree of a televiewer's interest to the broadcast program etc. can be grasped correctly numerically and useful information can be obtained for a broadcasting organization a program donor CM donor etc.

[0133]

[Effect of the Invention]As explained above while according to this invention communication networks such as the existing broadcasting system and the Internet are diverted and a VOD system can build easily Distribution control according to the amount of information distributed when distributing information to an audience's house from a center according to distribution of access to the center by the side of distribution of a program from an audience's house and a televiewer's demand can be performed easily.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]The figure showing roughly the composition of the whole broadcasting system concerning a 1st embodiment of this invention.

[Drawing 2]The figure showing the composition of the receiving set of a receiving terminal roughly.

[Drawing 3]The figure showing the display example of the picture of one scene of the reproduced image displayed on the display of a receiving terminal.

[Drawing 4]The figure showing the composition of the event generation device of a receiving terminal roughly.

[Drawing 5]The figure showing the composition of the network access device of a receiving terminal roughly.

[Drawing 6]The figure showing an example of the table of the channel information memorized by the server selecting part of the network access part of drawing 5 and the destination information of the broadcasting station server corresponding to it.

[Drawing 7]The figure showing the example of memory of the information memorized and managed by the program database provided in a broadcasting station server.

[Drawing 8]The flow chart for explaining a series of processing operation of the broadcasting system of drawing 1 shows the processing operation of an event generation device.

[Drawing 9]The flow chart for explaining a series of processing operation of the broadcasting system of drawing 1 shows the processing operation of a network access device.

[Drawing 10]The flow chart for explaining a series of processing operation of the broadcasting system of drawing 1 shows the processing operation of a broadcasting station server.

[Drawing 11]The figure showing the display example at the time of displaying the information transmitted from the broadcasting station server with the display of a receiving terminal.

[Drawing 12]The figure showing the display example at the time of displaying a reproduced image with the display of the receiving terminal in the broadcasting system concerning a 2nd embodiment of this invention.

[Drawing 13]The flow chart for explaining the processing operation of an event generation device.

[Drawing 14]The figure showing other examples of memory of the information memorized and managed by the program database provided in a broadcasting station server.

[Drawing 15]The figure showing roughly the composition of the whole broadcasting system concerning a 3rd embodiment of this invention.

[Drawing 16]The figure showing roughly other examples of composition of the network access device of a receiving terminal.

[Drawing 17]The flow chart for explaining the processing operation of

the network access device of drawing 16.

[Drawing 18]The figure showing roughly the composition of the whole broadcasting system concerning a 4th embodiment of this invention.

[Drawing 19]The figure showing other examples of composition of the receiving set of a receiving terminal.

[Drawing 20]The figure showing roughly the composition of the whole broadcasting system concerning a 5th embodiment of this invention.

[Drawing 21]The figure showing the example of composition of further others of the receiving set of a receiving terminal.

[Drawing 22]The flow chart for explaining control management (the 1st control management) when the amount of information which should transmit to each receiving terminal via a two-way communication circuit from a broadcasting station is extensive.

[Drawing 23]The flow chart for explaining the control management (the 2nd control management) for relaxation of access volumewhen it is expected that access from a receiving terminal concentrates to a broadcasting station server at the specific time under program broadcast.

[Drawing 24]The display example of the display of the receiving terminal in the case of conducting the questionnaire survey to a televiewer with the figure for explaining one usage pattern of the broadcasting system of this invention is shown.

[Description of Notations]

1 [-- A broadcasting station server2 / -- A receiving terminal2a / -- A receiving set2b / -- A display2c / -- A network access device2d / -- An event generation device3 / -- An information transmission line4 / -- Two-way communication circuit.] -- A broadcasting station1a -- A broadcast device1b -- A program database1c

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